

Material Safety Data Sheet

NUCOR**EAF Steelmaking Slag****PRODUCT AND COMPANY IDENTIFICATION**Product Identity: EAF Steelmaking SlagGeneral Product Description: Electric Arc Furnace Steelmaking SlagEmergencies: CHEMTREC (800) 424-9300 (U.S.) / (703) 527-3887 (International)**Nucor Locations**

Nucor Steel - Arkansas
7301 E. County Road 142
Blytheville, Arkansas 72315
Safety Officer: (870) 762-2100
(8:00 am - 5:00 pm)

Nucor Steel - Indiana
4537 South Nucor Road
Crawfordsville, IN 47933
Safety Officer: (765) 364-1323
(8:00 am - 5:00 pm)

Nucor Steel - Texas
U.S. Highway 78 South
Jewett, Texas 75846
Safety Officer: (903) 626-4461
(8:00 am - 5:00 pm)

Nucor Steel - Decatur
4301 Iverson Blvd.
Trinity, Alabama 35673
Safety Officer: (256) 301-3541
(8:00 am - 5:00 pm)

Nucor Steel - Kankakee
972 East 4500 North Road
Bourbonnais, IL 80914
Safety Officer: (901) 947-8000
(8:00 am - 5:00pm)

Nucor Steel - Berkeley
1455 Hagan Avenue
Huger, South Carolina 29450
Safety Officer: (843) 336-6229
(8:00 am - 5:00 pm)

Nucor Steel - Nebraska
2911 East Nucor Road
Norfolk, Nebraska 68702
Safety Officer: (402) 644-0200
(8:00 am - 5:00 pm)

Nucor Steel - Utah
West Cemetery Road
Plymouth, Utah 84330
Safety Officer: (435) 458-2300
(8:00 am - 5:00 pm)

Nucor Steel - Hartford
1605 River Road
Coffield, N.C. 27922
Safety Officer: (252) 358-3700
(8:00 am - 5:00 pm)

Nucor Steel - Jackson
3630 Fourth Street
Flowood, MS 39208
Safety Officer: (601) 939-1623
(8:00 am - 5:00pm)

Nucor Steel - Darlington
300 Steel Mill Road
Darlington, S.C. 29540
Safety Officer: (843) 393-5841
(8:00 am - 5:00 pm)

Nucor Steel - New York
25 Quarry Road
Auburn, N.Y. 13021
Safety Officer: (315) 263-4561
(8:00 am - 5:00 pm)

Nucor Yamato Steel
Intersection Hwy 18 East
Blytheville, Arkansas 72318
Safety Officer: (870) 782-5500
(8:00 am - 5:00 pm)

Nucor Steel - Birmingham
2301 F.L. Shuttlesworth Drive
Birmingham, Alabama 35234
Safety Officer: (205) 252-8777
(8:00 am - 5:00 pm)

Nucor Steel - Seattle
2424 SW Andover
Seattle, WA 98108
Safety Officer: (206) 933-2222
(8:00 am - 6:00 pm)

USEPA SF**1256215**

MSDS: EAF Steelmaking Slag - continued

COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENTS	CAS #	Percentages
Calcium Oxide	1305-78-8	25 - 50
Iron Oxide	1309-37-1	5 - 45
Dicalcium Silicate	10034-77-2	0 - 15
Tricalcium Silicate	12168-85-3	0 - 15
Dicalcium Ferrite	12013-62-6	0 - 15
Magnesium Oxide	1309-48-4	5 - 10
Manganese Oxide	1317-35-7	5 - 15
Aluminum Oxide	1344-28-1	3 - 15
Silicon Dioxide	14808-60-7	8 - 35

Steelmaking Slag is a complex mixture of metals and inorganic salts that can change due to changes in feedstocks and the method used for manufacturing steel.

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Granular solid or aggregate with no appreciable odor. Skin Irritant, Possibly Corrosive.

POTENTIAL HEALTH EFFECTS

ROUTES OF EXPOSURE: Skin Contact, Eye, Inhalation.

IMMEDIATE EFFECTS

SKIN (CONTACT AND ABSORPTION): May cause mechanical or chemical irritation, redness and pain. Contains calcium oxide that may cause irritation or damage to the skin.

EYES: May cause mechanical or chemical irritation, tearing, redness and pain. Contains calcium oxide that may cause severe irritation or permanent damage to the tissues of the eye.

INHALATION: May cause irritation, coughing. Contains substances that may cause severe irritation one of which is calcium oxide a corrosive. Contains manganese and its salts: Manganese inhalation may cause flu-like illness (metal fume fever), characterized by chills, fever, aching muscles, dryness in the throat and mouth and headache, possible resulting in fatal pneumonia.

INGESTION: Not expected to be a normal route of exposure. Ingestion may cause symptoms similar to inhalation.

DELAYED / LONG TERM EFFECTS

CHRONIC EXPOSURE: Contains manganese and its salts: Chronic manganese exposure may affect the Lung, Kidney, Brain / Central Nervous System and Blood / Blood forming organs with early symptoms like sluggishness, sleepiness and weakness in legs. Advanced cases have shown fixed facial expression, emotional disturbances, spastic gait, illness closely resembles Parkinson's Disease. Kidney effects, blood changes, lung damage and manganese psychosis may result from chronic exposure.

May contain crystalline silica. Chronic respiratory exposure to silica may cause lung disease. Symptoms may include shortness of breath, coughing and right heart enlargement or heart failure. Not all individuals with silicosis will exhibit symptoms. Silicosis is progressive and symptoms can appear at any time, even after exposure has ceased. Tobacco smoking may increase the risk of developing lung disorders, including emphysema and lung cancer.

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CARCINOGENIC EFFECTS: May contain crystalline silica that can cause a disease called silicosis. Crystalline silica is classified by the International Agency for Research on Cancer (IARC) as carcinogenic to humans (Group 1). The National Toxicology Program (NTP) has characterized respirable silica as "known to be a human carcinogen".

REPRODUCTIVE EFFECTS: No product specific data.

TARGET ORGAN EFFECTS: LUNG, KIDNEY, BRAIN / CENTRAL NERVOUS SYSTEM AND BLOOD / BLOOD FORMING ORGANS.

SIGNS AND SYMPTOMS OF OVEREXPOSURE: COUGHING, IRRITATION TO THE EYE OR SKIN.

FIRST AID MEASURES**FIRST AID PROCEDURES**

INGESTION (SWALLOWING): If appreciable quantities are swallowed, seek medical attention.

INHALATION (BREATHING): Remove to fresh air if symptoms of respiratory distress occur from dust inhalation. If irritation continues, seek medical attention.

SKIN CONTACT: Wash affected area with soap and water. Consult physician if irritation continues.

EYE CONTACT: Flush with water for 15 minutes. Seek medical attention.

FIRE FIGHTING MEASURES**FLAMMABLE PROPERTIES**

FLASH POINT (Closed Cup): Not Applicable.

UPPER FLAMMABLE LIMIT: Not Applicable **LOWER FLAMMABLE LIMIT:** Not Applicable

AUTOIGNITION TEMPERATURE: No Information

FLAMMABILITY CLASSIFICATION: Not applicable.

HAZARDOUS PRODUCTS OF COMBUSTION: Will not support combustion. However, if involved in a fire may give off toxic metal vapors or fumes and oxides of carbon.

UNUSUAL OR UNIQUE FIRE PROPERTIES: None.

EXTINGUISHING INFORMATION

EXTINGUISHING MEDIA: Use media suitable for surroundings

SPECIAL FIREFIGHTING PROCEDURES: Not applicable.

ACCIDENTAL RELEASE MEASURES

CONTAINMENT, CLEAN-UP PROCEDURES: Product is a solid. Shovel up and reuse or dispose of properly. Pick up dusts with broom, dustpan or shovel. Avoid making dust.

HANDLING AND STORAGE

HANDLING: After handling wash hands with soap and water.

STORAGE: No special handling required.

EXPOSURE CONTROLS AND PERSONAL PROTECTION**ENGINEERING CONTROLS**

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GENERAL VENTILATION: General room ventilation is adequate for processing that does not generate dusts or fumes.

LOCAL EXHAUST: For processes that generate dusts or fumes, a local exhaust system is recommended.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

EYE AND FACE PROTECTION: Safety glasses with side shields for normal use.

SKIN PROTECTION: Under normal use, wear work gloves to prevent direct skin contact.

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Where unknown concentrations are encountered or during an emergency, use NIOSH approved supplied air respirator.

EXPOSURE GUIDELINES

Silicon Dioxide- OSHA: 0.1 mg/m³, ACGIH: 0.1 mg/m³

Calcium Oxide- OSHA: 5 mg/m³, ACGIH: 2 mg/m³

Aluminum Oxide- OSHA: 5 mg/m³, ACGIH: 5 mg/m³

Iron Oxide (as Fe)- OSHA: 10 mg/m³, ACGIH: 5 mg/m³

Magnesium Oxide (dust) - Not Established

Manganese Oxide (as Mn)- OSHA: C 5 mg/m³, ACGIH 0.2 mg/m³

Dicalcium Ferrite - Not Established

Dicalcium Silicate - Not Established

Tricalcium Silicate - Not Established

PHYSICAL AND CHEMICAL PROPERTIES

ODOR: None.

pH (aqueous solution): >11

DENSITY: 3.2 - 3.6 typical

PHYSICAL STATE: Granular solid or aggregate.

MELTING POINT: Not known.

SOLUBILITY IN WATER: Partially soluble

STABILITY AND REACTIVITY

STABILITY: Stable.

HAZARDOUS POLYMERIZATION: Will not occur

INCOMPATIBILITY: Avoid contact with strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Under fire conditions, product may release toxic metal oxide fumes and / or carbon monoxide or carbon dioxide.

OTHER: This product is a mixture that contains a large percentage of hygroscopic, calcium salts. Changes in the moisture content of this product may change the density resulting in expansion and contraction of the material.

TOXICOLOGICAL INFORMATION

TOXICITY TEST DATA: No product specific information. Contains manganese and its salts which may affect the Lung, Kidney, Brain / Central Nervous System and Blood / Blood forming organs.

IRRITATION: No product specific information. May cause irritation, possible severe. Contains calcium oxide or other calcium salts that may be corrosive to skin or eye. Contains substances may cause irritation to the lung if inhaled.

SENSITIZATION: No specific information.

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CARCINOGENICITY: May contain crystalline silica. Crystalline silica is classified by the International Agency for Research on Cancer (IARC) as carcinogenic to humans (Group 1). The National Toxicology Program (NTP) has characterized respirable silica as "known to be a human carcinogen".

REPRODUCTIVE TOXICITY: No product specific data found.

ADIATION: This product is normally free of radiation.

ECOLOGICAL CONSIDERATIONS

TOXICOLOGICAL INFORMATION: Tests indicate product not to be environmentally toxic for normal uses as an aggregate product. However, due to the high residual calcium salts, the pH of water solutions of this product may be elevated.

DISPOSAL CONSIDERATIONS

Please note that the following information pertains only to the unused, uncontaminated material.

RCRA CLASSIFICATION: Not considered a hazardous waste under RCRA 40 CFR 261. See table under REGULATORY INFORMATION section.

U.S. EPA HAZARDOUS WASTE NUMBER: Not Applicable.

DISPOSAL RECOMMENDATIONS: Reuse and recycle whenever possible. Unusable material may be disposed of with normal waste.

TRANSPORTATION

Ground: Proper Shipping Name: Not Regulated

UN/NA Number: Not Regulated

Labels/Markings: Not Regulated

Overwater: Proper Shipping Name: Not Regulated

UN/NA Number: Not Regulated

Labels/Markings: Not Regulated

Air: Proper Shipping Name: Not Regulated

UN/NA Number: Not Regulated

Labels/Markings: Not Regulated

Other (MARPOL / Carrier Specific): None

REGULATORY INFORMATION

SCA Statutes: Not Characterized.

ARA Title III Section 302/304: See Table Below

ARA Title III Section 311/312: ACUTE : Y CHRONIC: Y FIRE: N REACTIVE: N SUDDEN RELEASE: N

ARA Title III Section 313:

Chemical Name	CAS Number	Concentration (mg/kg)*	CERCLA RQ (lbs)
Aluminum	7429-90-5	3.5 (%)	na
Antimony	7440-36-0	4.0	5000
Arsenic	7440-38-2	1.9	1

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Barium	7440-39-3	557	na
Beryllium	7440-43-9	1.1	10
Cadmium	7440-43-9	7.6	10
Chromium	7440-47-3	3046	5000
Cobalt	7440-48-4	4.8	na
Copper	7440-50-8	178	5000
Lead	7439-92-1	28	10
Manganese	7439-98-5	3.9 (%)	na
Mercury	7439-97-6	0.038	1
Nickel	7440-02-0	30	100
Phosphorus	7723-14-0	1781	1
Selenium	7782-49-2	18	100
Silver	7440-22-4	8.4	1000
Thallium	7440-28-0	11	1000
Vanadium	7440-82-2	513	na
Zinc	7440-66-6	185	1000

* average of at least 45 samples

Right to Know: Aluminum Oxide (1344-28-1) [Fibrous forms]

Right to Know: Calcium Oxide (1305-78-8), Iron Oxide (1309-37-7), Magnesium Oxide (1309-48-4), Manganese Oxide (1317-35-7), Aluminum Oxide (1344-28-1)

California Safe Drinking Water Act (Proposition 65): This product contains the following substances known to the State of California to cause cancer or reproductive harm: Lead, Nickel, Cadmium, Chromium, Arsenic, Cobalt, Mercury, Antimony, Beryllium, Silica.

OTHER INFORMATION

NFPA 704		HMIS III	
	2		*2
	0		0
Reactivity	0	Physical	0

PREPARED BY: EHS Technical, Inc.

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